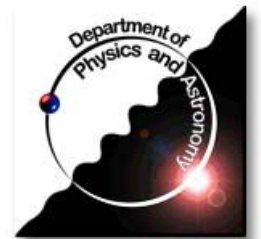


Noise and correlation monitoring using LArNoiseMonToolBase

Endcap expert week
08 June 2006

- Noise comparisons
 - HEC LV on/off
- Coherent noise

M. Lefebvre
University of Victoria



summary histo

■ for tag LArMonTools-00-01-79

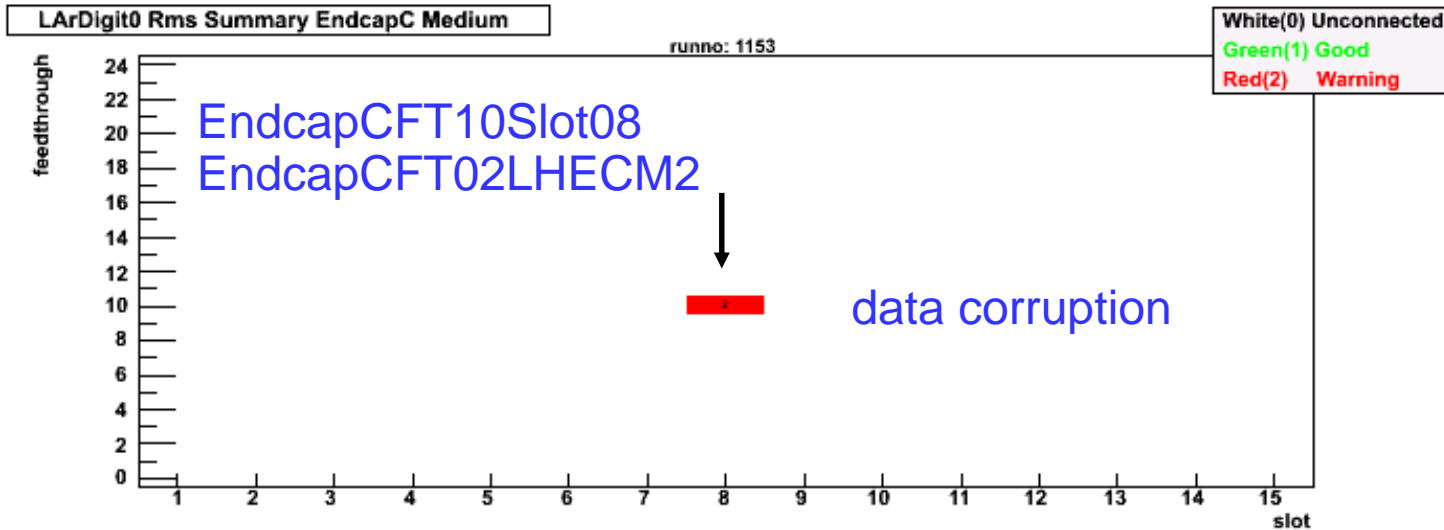
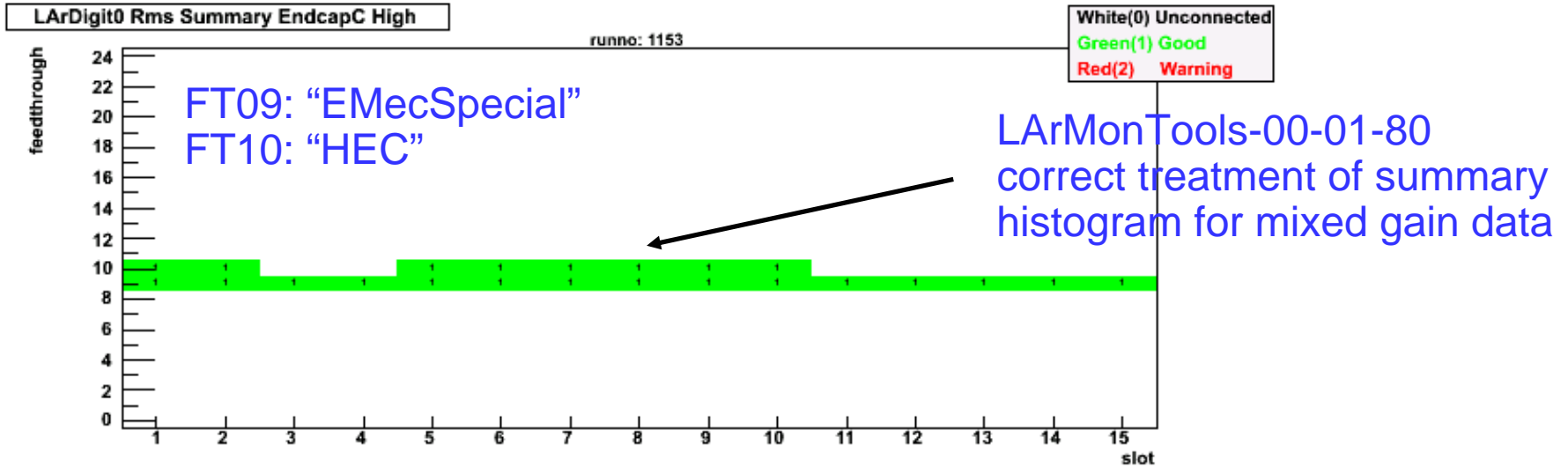
- the same criterion is applied for the EM and FCal
- for the HEC, the same criterion is applied **but per region per ieta within a FEB**
- this is well adapted to the HEC
 - the noise varies a lot per FEB and per region
 - at least 4 channels for a given (region, ieta) in each HEC FEB, corresponding to different iphi values
- this is NOT well adapted to the EM
 - often only 2 channels for a given (region, ieta) in a FEB
- by default, $D = 0.5$
 - better than 1., as it allows to flag very low noise channels

■ from tag LArMonTools-00-01-80

- improvement in the case of mixed gain data

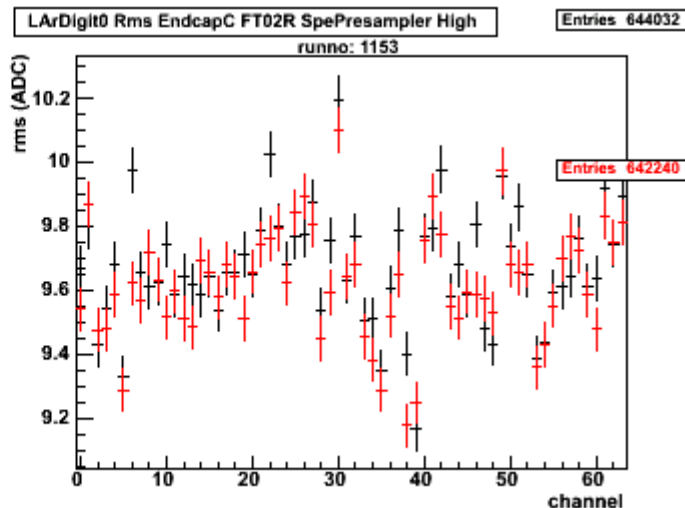
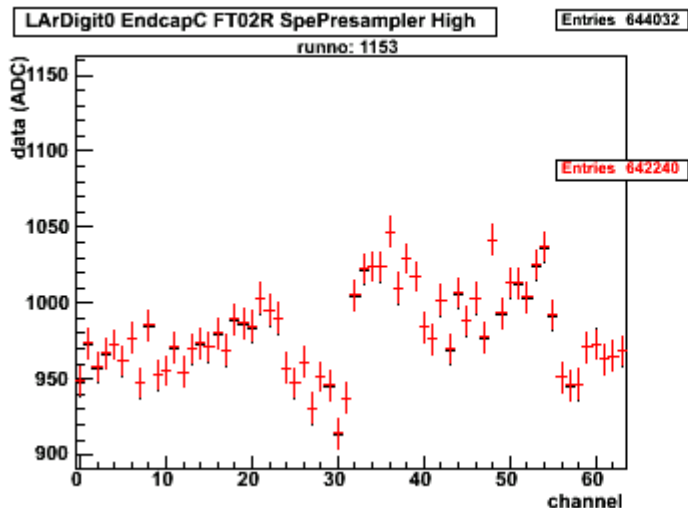
summary histo (continued)

■ run 1153 (pedestal, high gain, 10063 events)



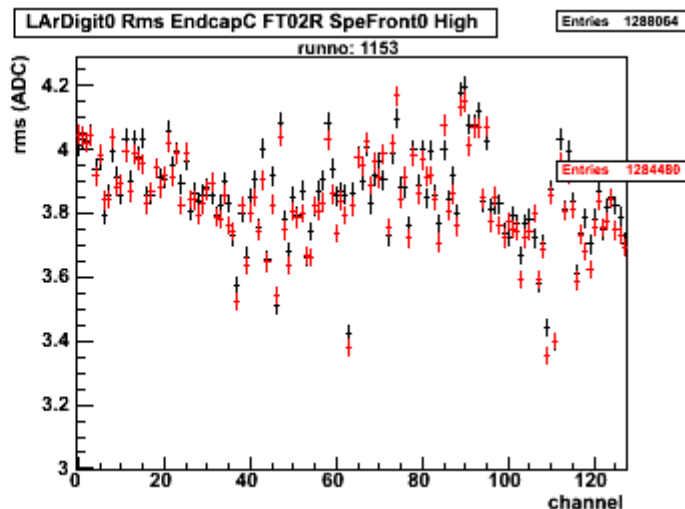
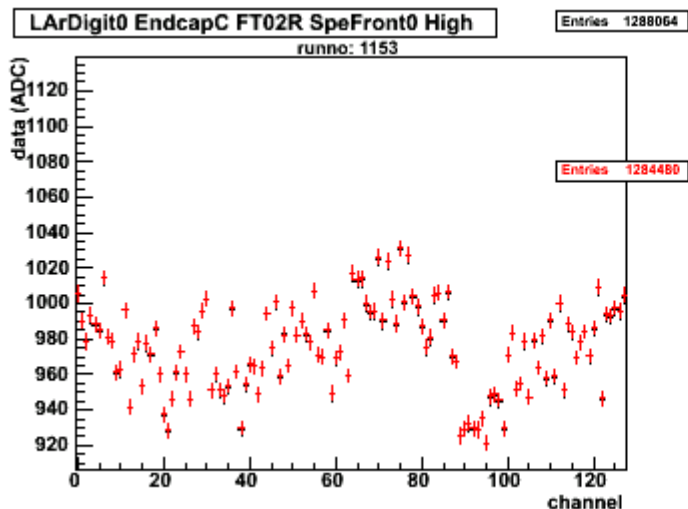
pedestal and noise: run 1153 vs 1202

■ Typical FT09 (FT02R) “EMecSpecial” febs



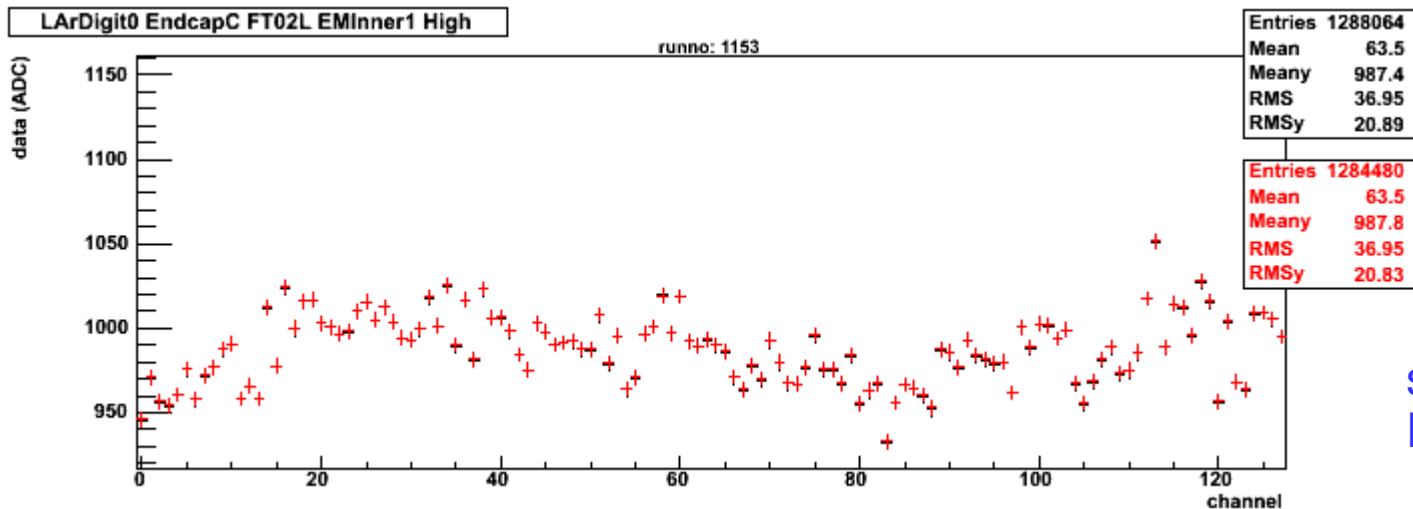
Similar results

Note 64 channels for presampler



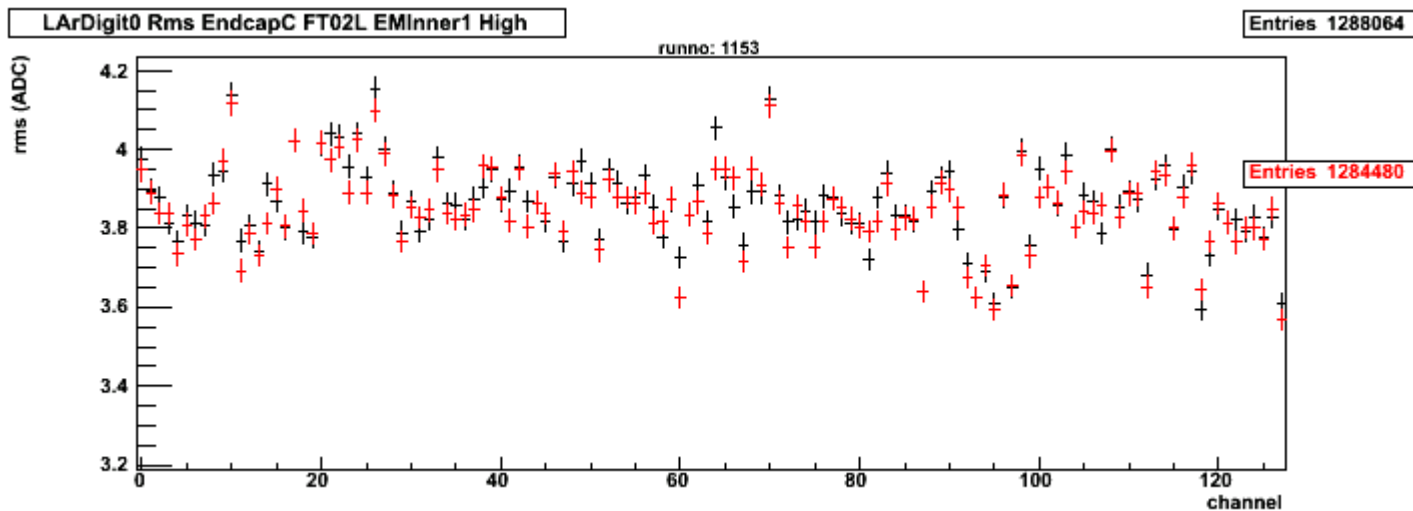
pedestal and noise: run 1153 vs 1202

■ FT10 (FT02L) “HEC feedthrough”, EMEC febs



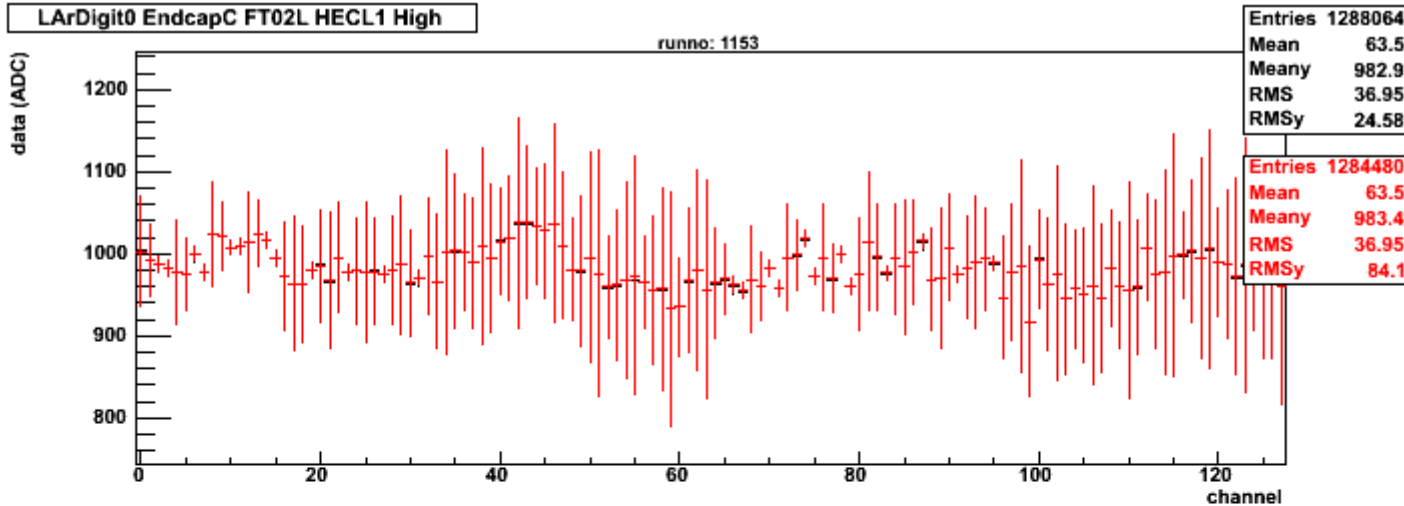
Similar results

same for EMINner2



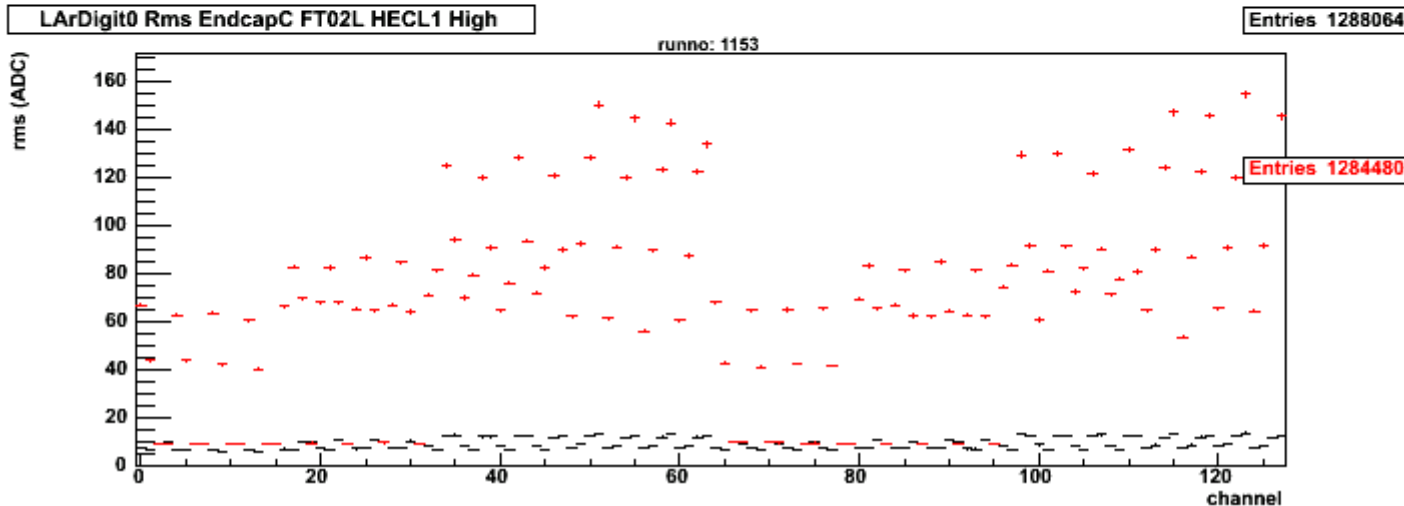
pedestal and noise: run 1153 vs 1202

■ FT10 (FT02L) “HEC feedthrough”, HEC febs



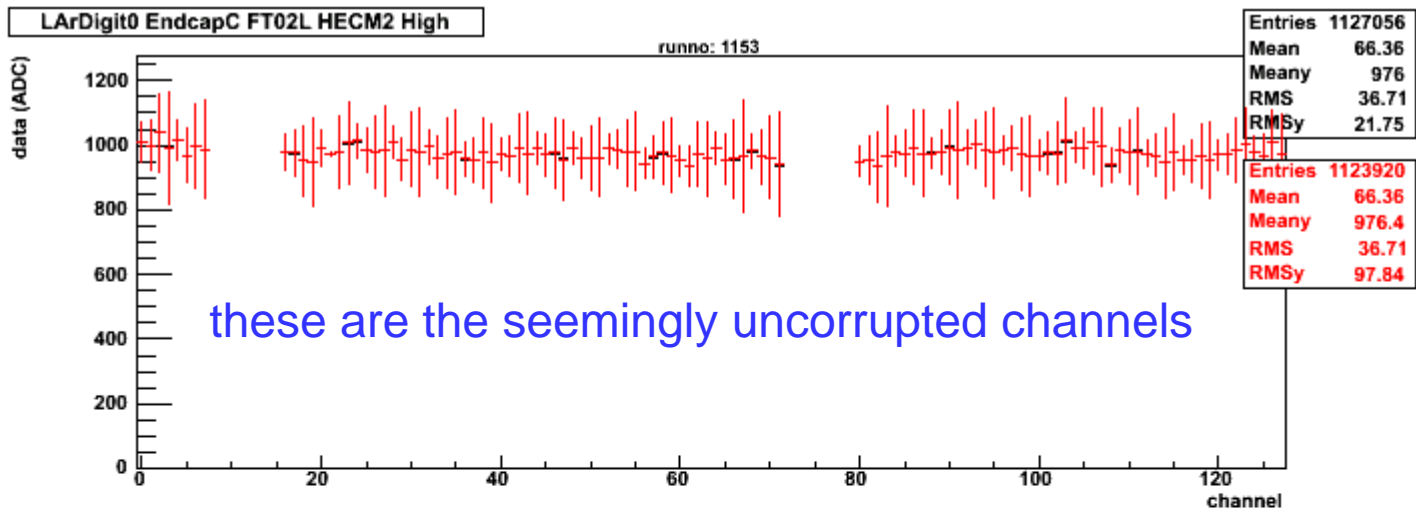
HEC LV on
increases
noise but
does not
affect
pedestal

Same result
for other 5
HEC febs

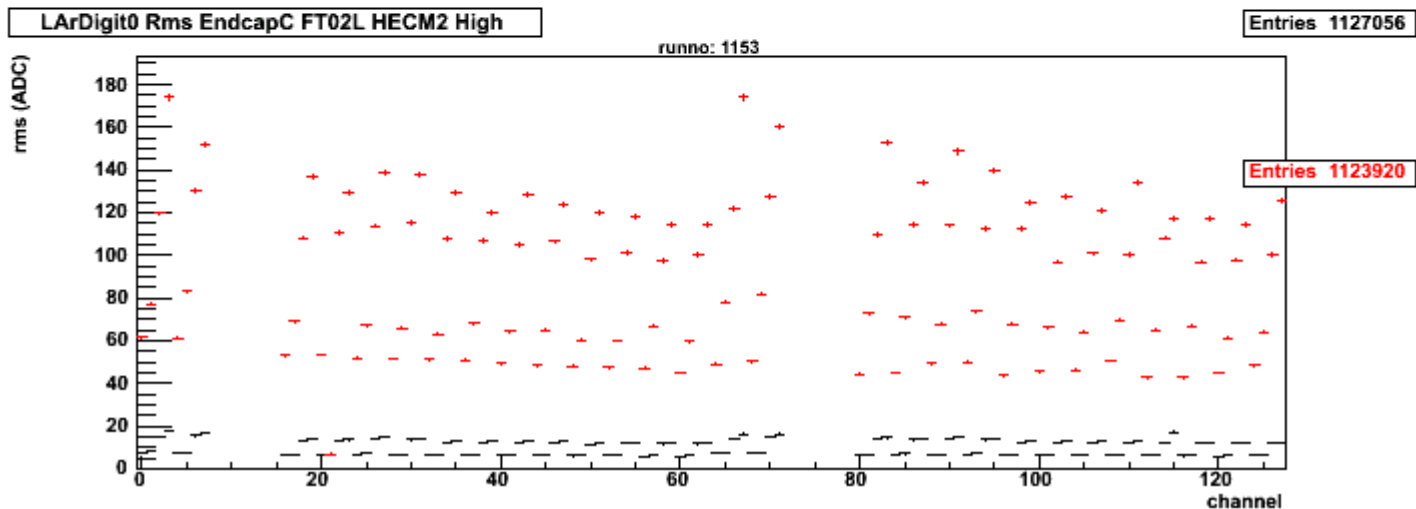


pedestal and noise: run 1153 vs 1202

■ FT10 (FT02L) “HEC feedthrough”, HECM2

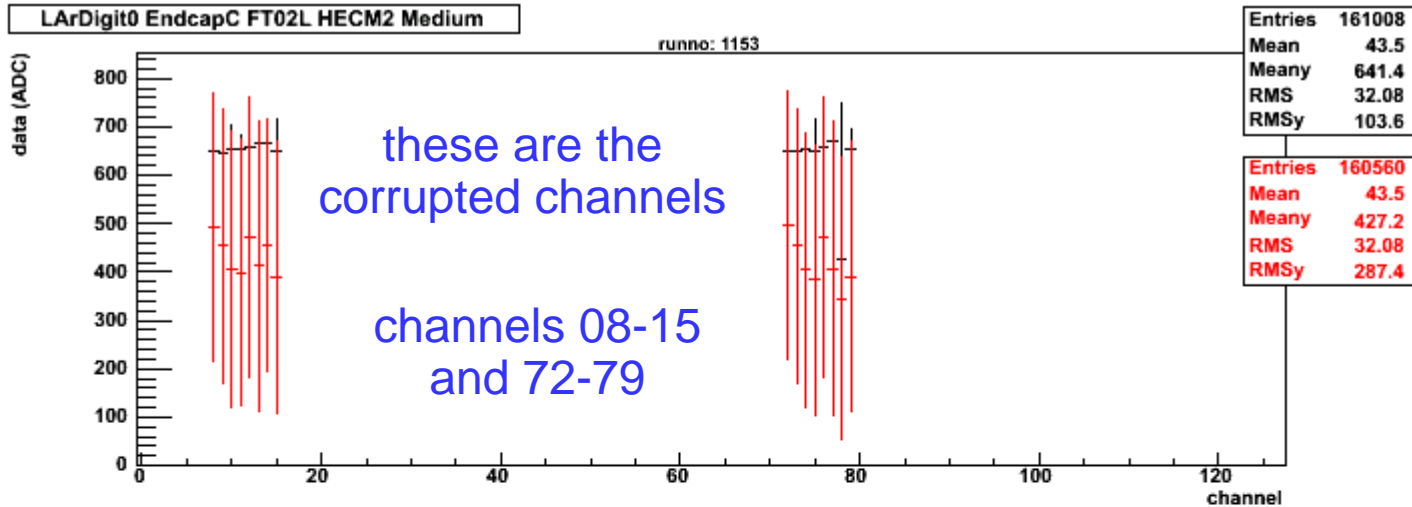


HEC LV on
increases
noise but
does not
affect
pedestal

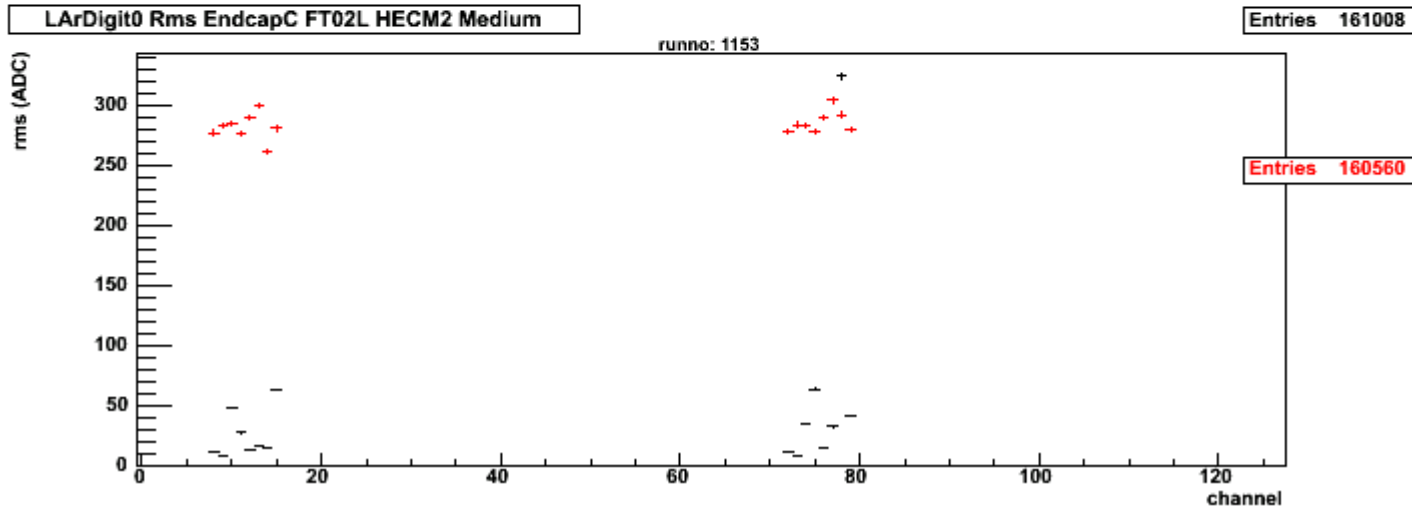


pedestal and noise: run 1153 vs 1202

■ FT10 (FT02L) “HEC feedthrough”, HECM2

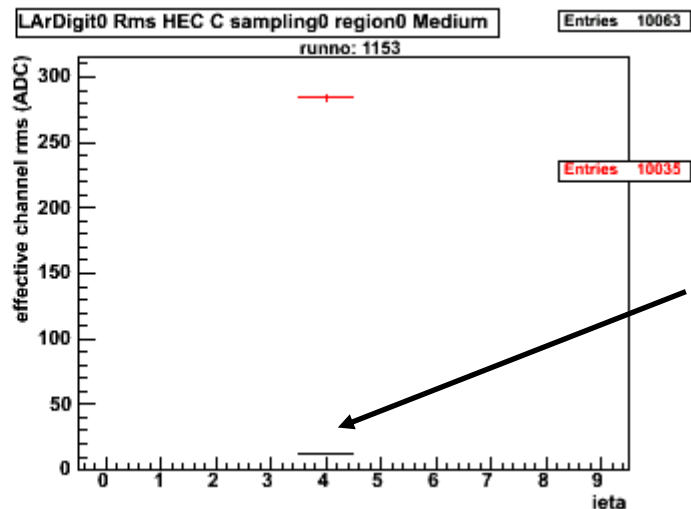
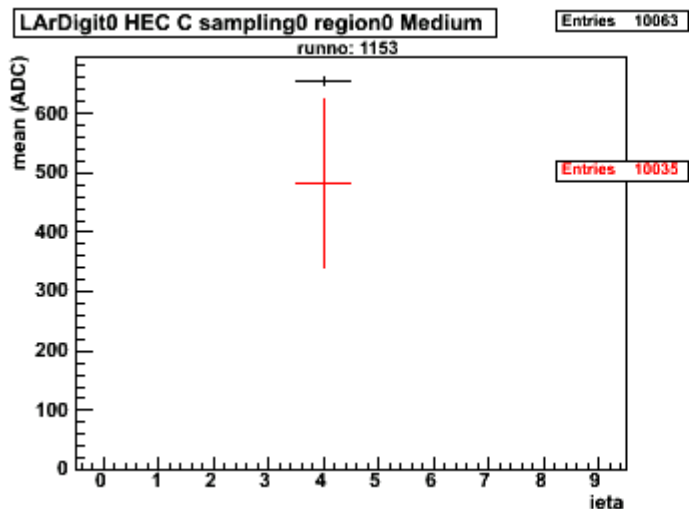
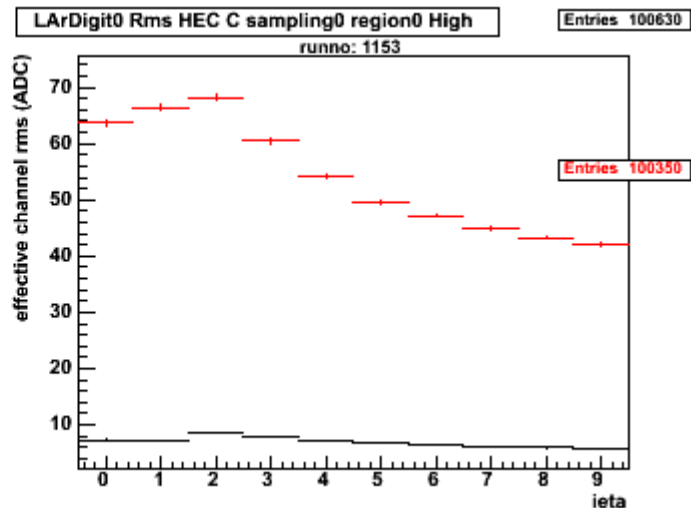
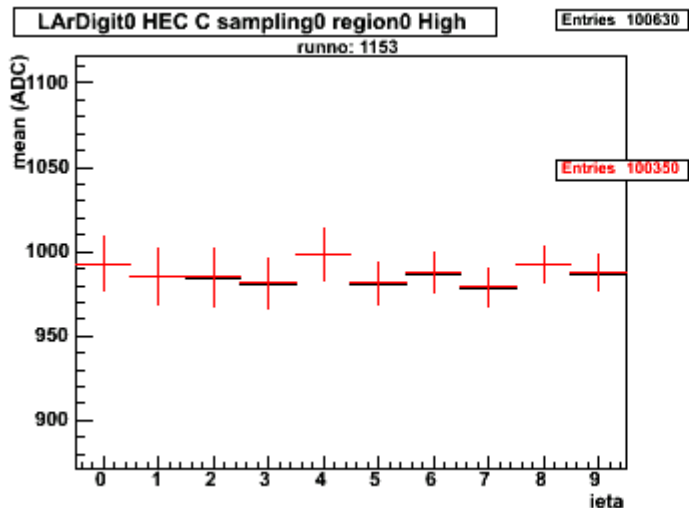


HEC LV on increases noise but does not affect pedestal



pedestal and noise: run 1153 vs 1202

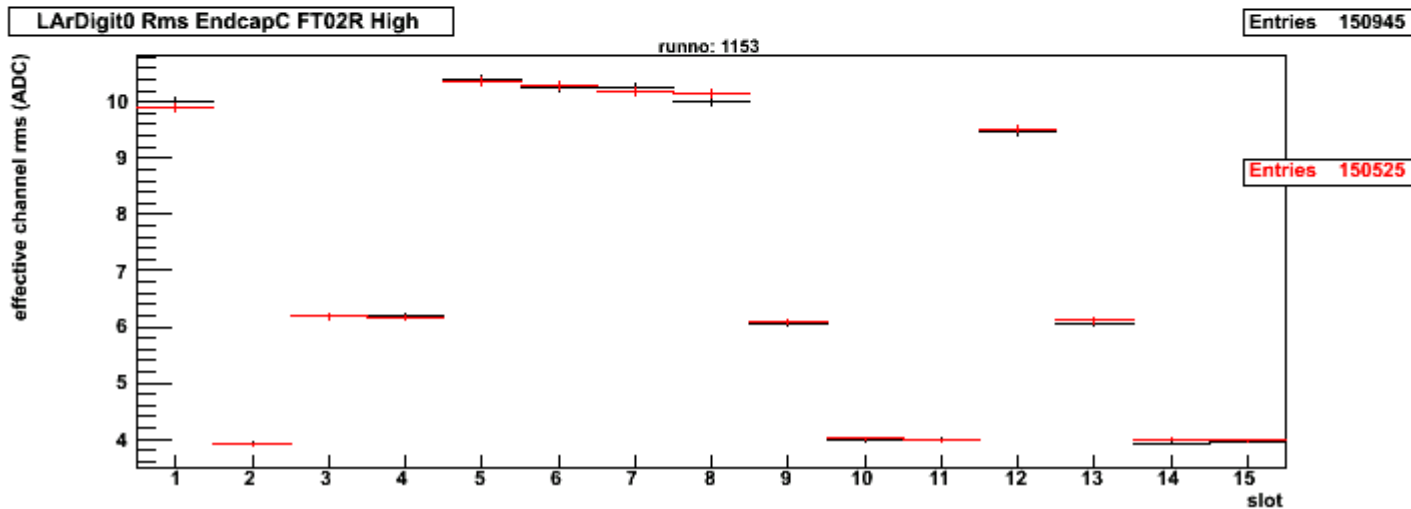
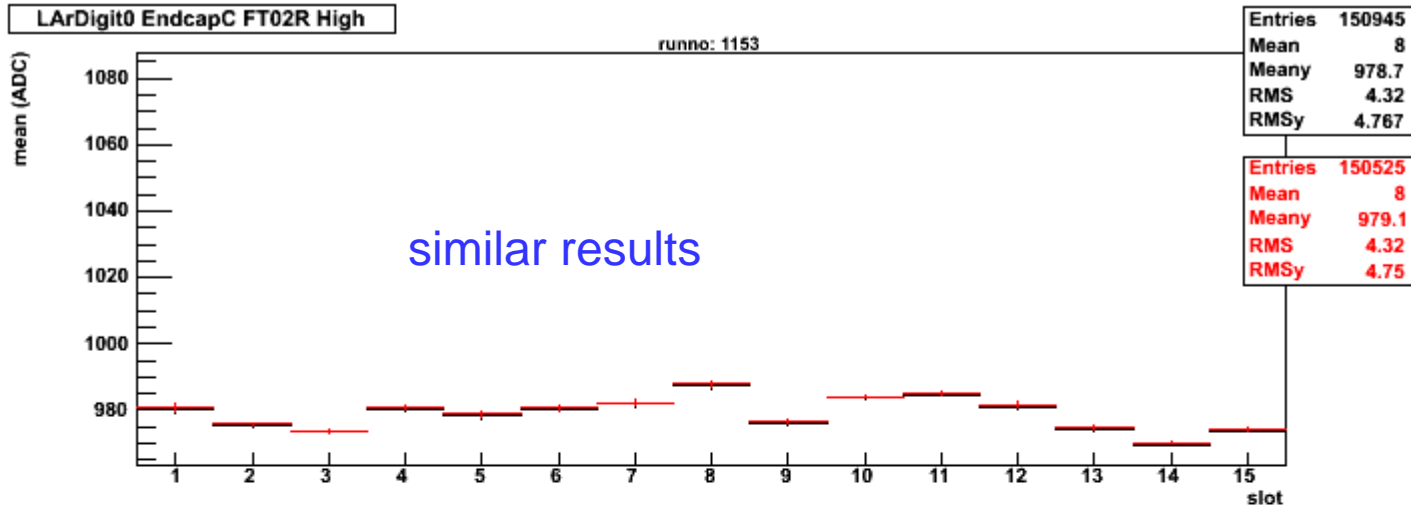
■ FT10 (FT02L) “HEC feedthrough”, region context



corrupted channels are in sampling0-4 region0

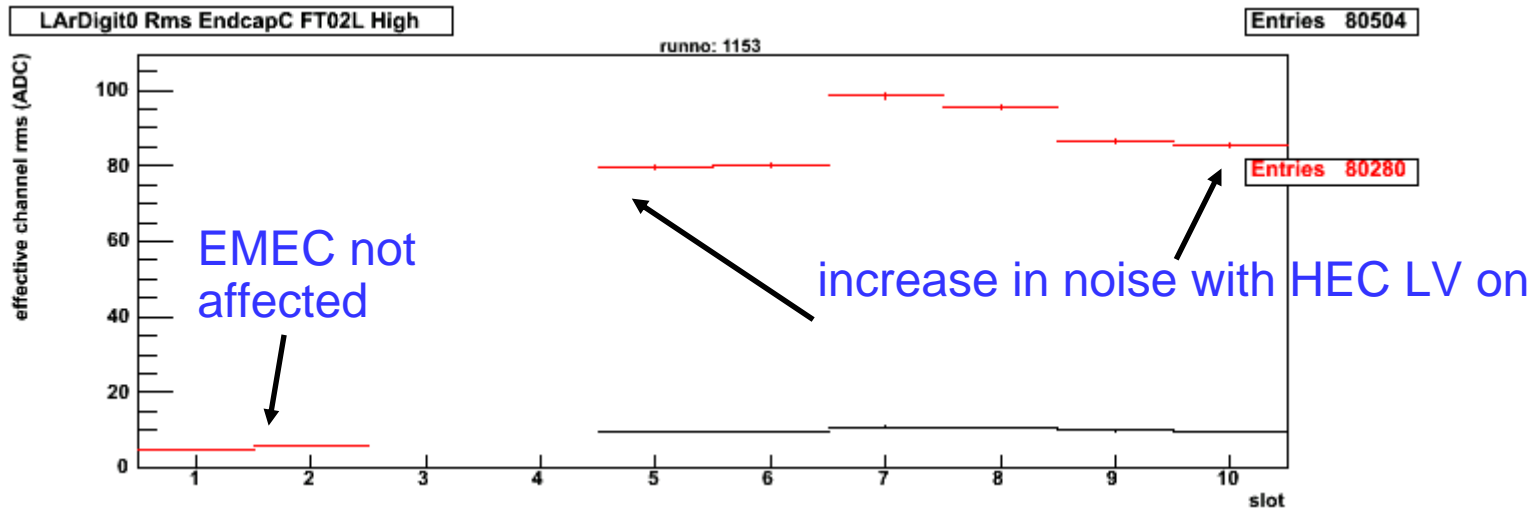
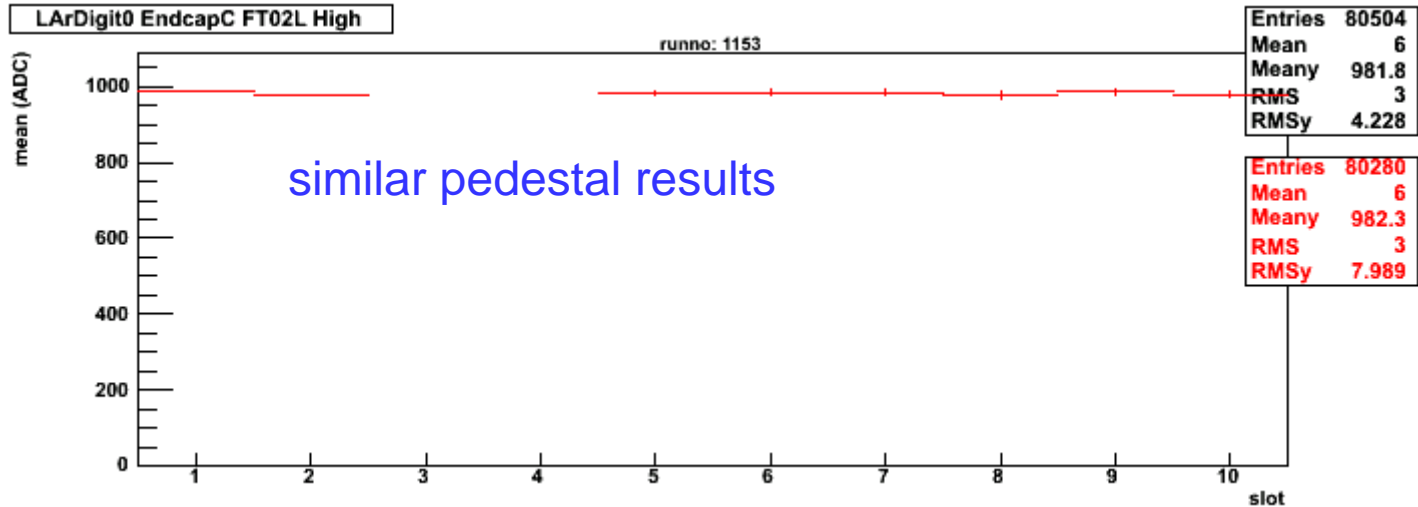
pedestal and noise: run 1153 vs 1202

■ FT09 (FT02R) “EMecSpecial”, feedthrough context



pedestal and noise: run 1153 vs 1202

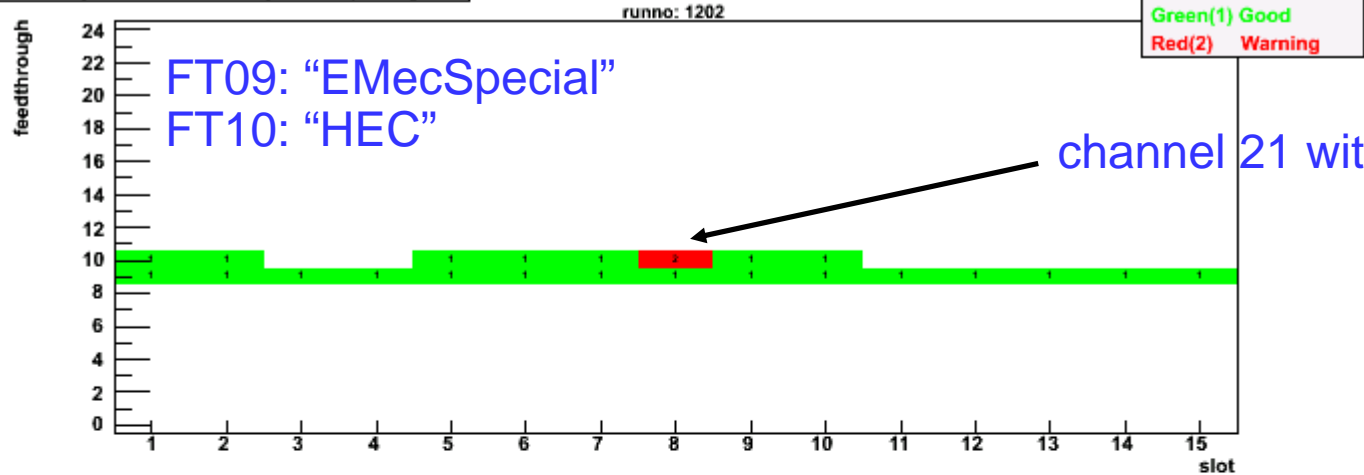
■ FT10 (FT02R) “HEC feedthrough”, feedthrough context



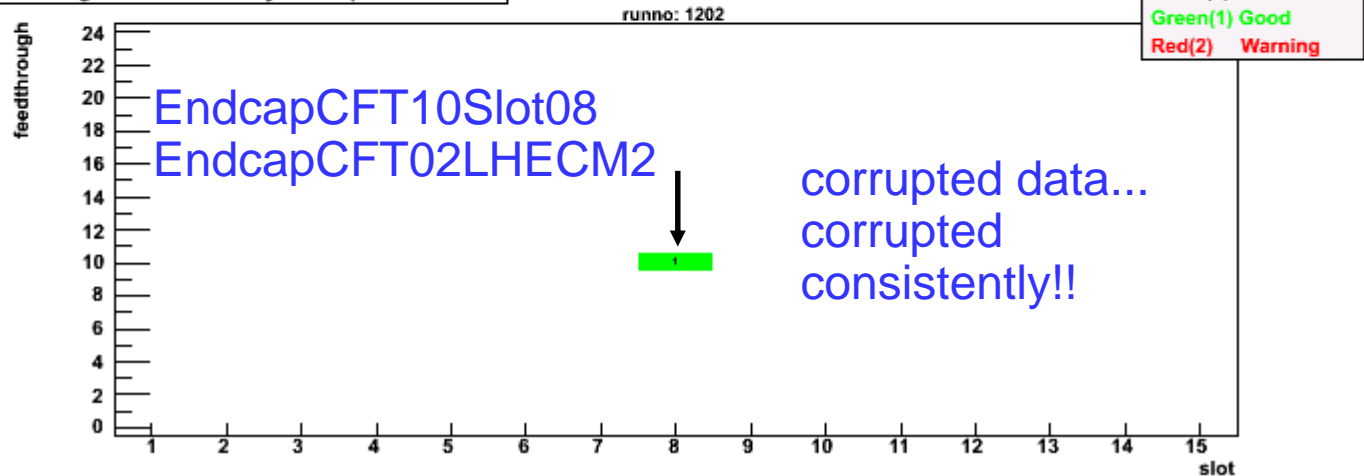
summary histo (continued)

■ run 1202 (pedestal, high gain, 10035 events)

LArDigit0 Rms Summary EndcapC High

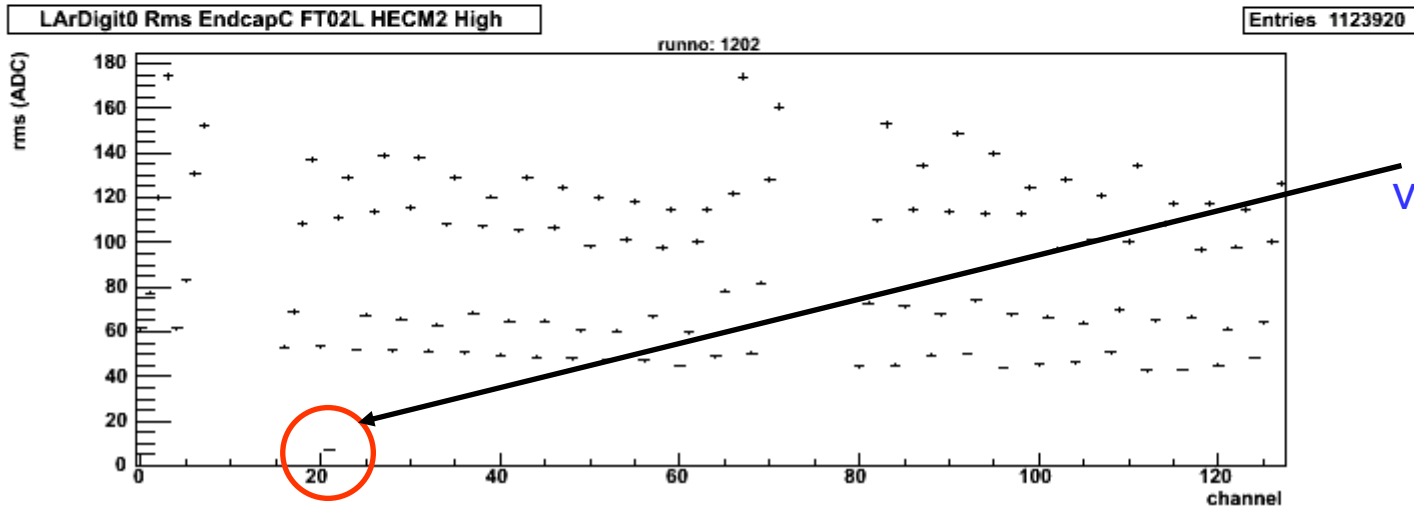
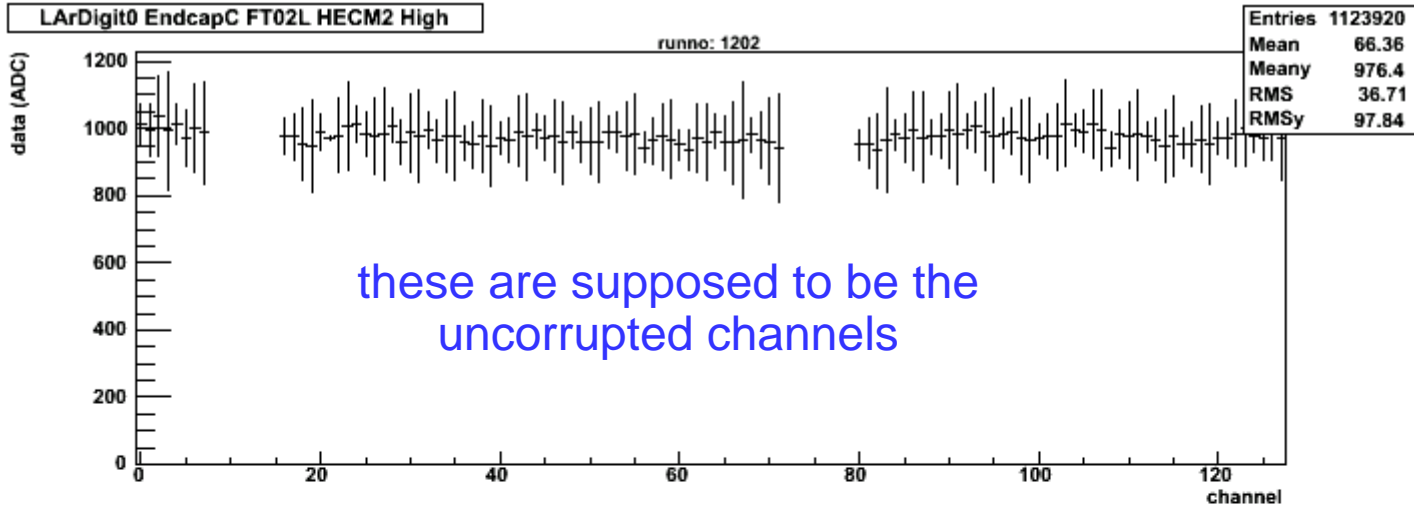


LArDigit0 Rms Summary EndcapC Medium



pedestal and noise: run 1202

■ FT10 (FT02L) “HEC feedthrough”, HECM2

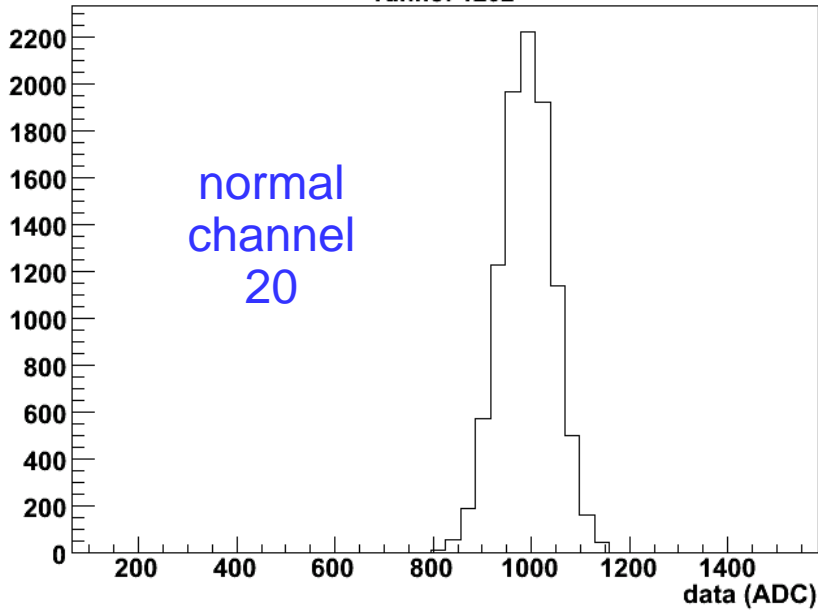


pedestal and noise: run 1202

■ FT10 (FT02L) “HEC feedthrough”, HECM2

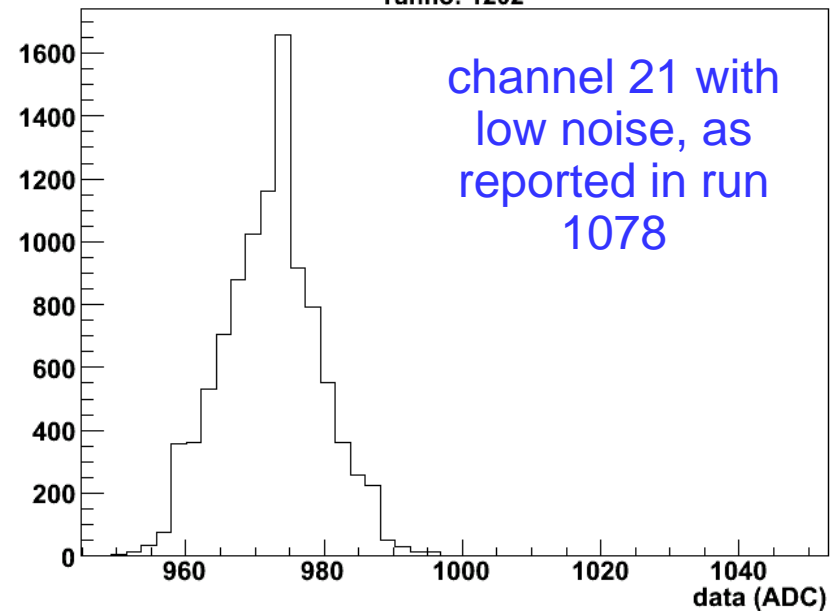
LArDigit0 EndcapC FT02L HECM2 Channel020 High
runno: 1202

Entries 10035



LArDigit0 EndcapC FT02L HECM2 Channel021 High
runno: 1202

Entries 10035

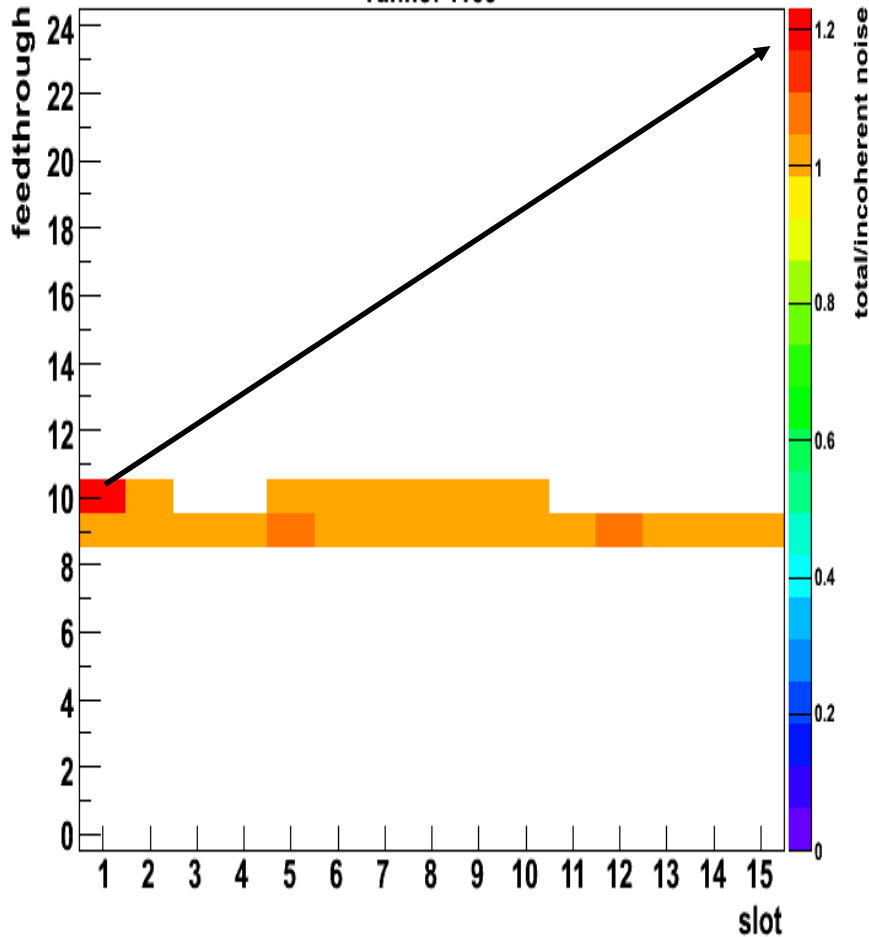


coherent noise summary: run 1153 vs 1202

■ largest coherent noise in EInner1

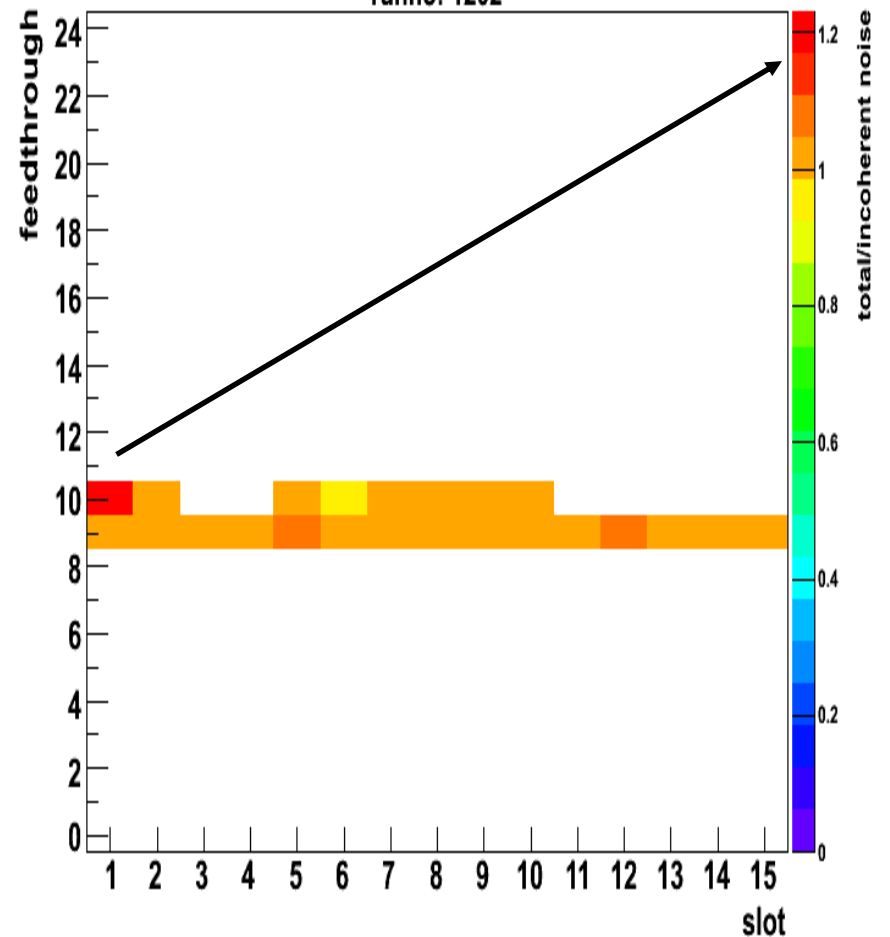
LArDigit0 Total/Incoherent Noise EndcapC High

runno: 1153



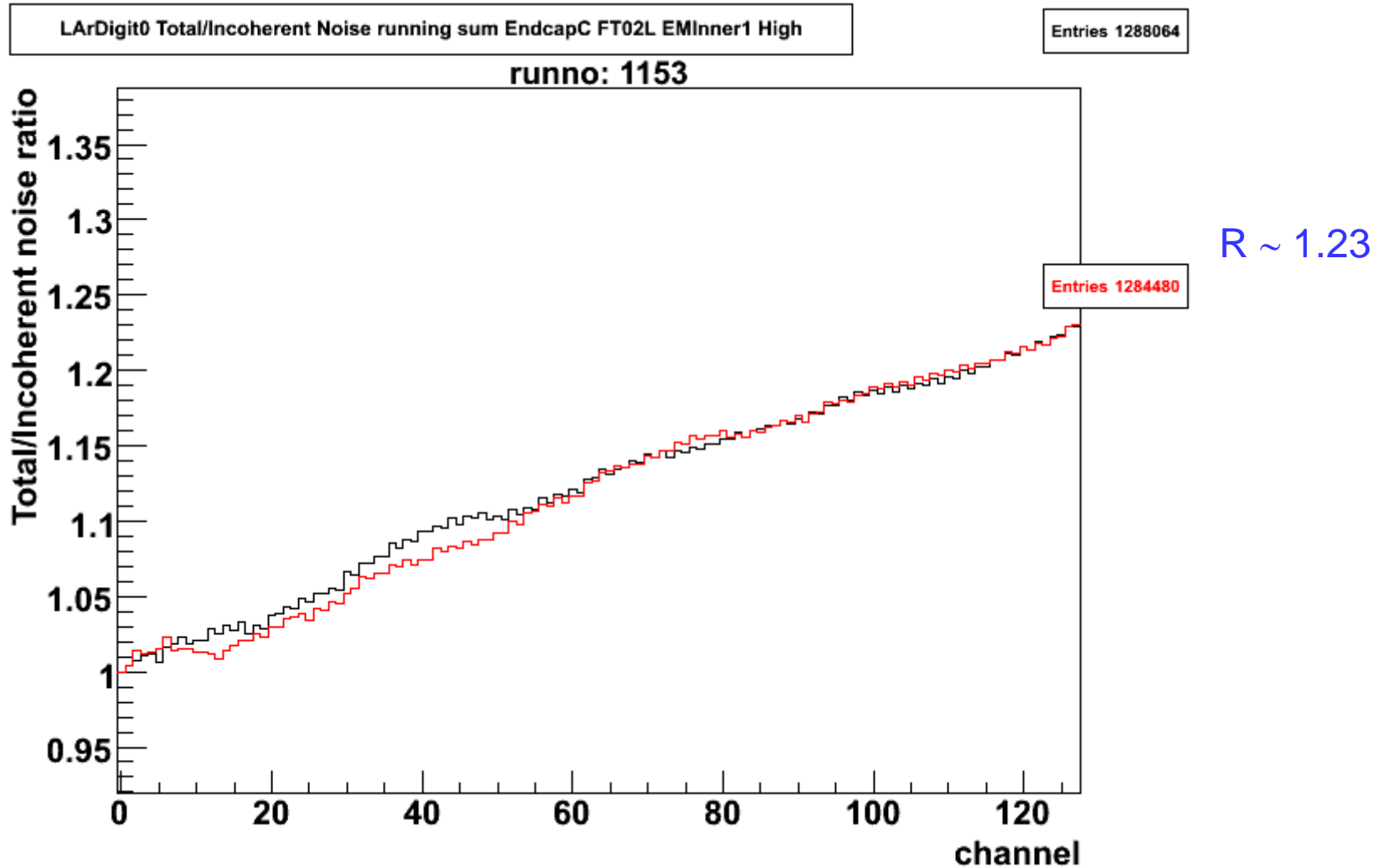
LArDigit0 Total/Incoherent Noise EndcapC High

runno: 1202



coherent noise: run 1153 vs 1202

■ largest coherent noise in EMLinner1



correlations 1153, 1154, 1155

■ typical example

